

Greenhouse Gas Emissions Reduction Action Plan for Fiscal Year 2008–2009



Prepared by the Department of Environmental Quality
May 2008

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Policy Regarding the Role of State Government in Reducing Greenhouse Gases

C.L. “BUTCH” OTTER
GOVERNOR

EXECUTIVE DEPARTMENT
STATE OF IDAHO
BOISE

EXECUTIVE ORDER NO. 2007-05

**ESTABLISHING A STATE POLICY REGARDING THE ROLE OF STATE
GOVERNMENT IN REDUCING GREENHOUSE GASES**

WHEREAS, there are indications that atmospheric concentrations of greenhouse gases are rising and are projected to continue to increase; and

WHEREAS, human activities contribute to creation of greenhouse gases; and

WHEREAS, greenhouse gases are believed to trap heat in the atmosphere and have been linked by the U.S. National Academy of Sciences to drought, reduced snow pack, altered precipitation patterns, more severe forest and rangeland fires, and forest diseases; and

WHEREAS, the Western Governors' Association projects that rising levels of greenhouse gases in the atmosphere could have economic and environmental impacts on the West in coming decades, and

WHEREAS, the causes and effects of rising greenhouse gases, to the degree they are understood, may extend to the Western United States and the State of Idaho, and it is incumbent upon states to take a leadership role in developing responsive state-level policies and programs to reduce greenhouse gas emissions, develop alternative energy sources and use energy efficiently,

NOW, THEREFORE, I, C.L. “BUTCH” OTTER, Governor of the State of Idaho, by the authority vested in me under the Constitution and the laws of the State of Idaho do hereby order that:

- 1. The Director of the Department of Environmental Quality shall take a leadership role to work with all state government departments and agencies and shall serve as the central point of contact for coordination and implementation of greenhouse gas reduction efforts and other associated activities.*
- 2. The Director of the Department of Environmental Quality shall develop a greenhouse gas emission inventory and provide recommendations to the Governor on how to reduce greenhouse gas emissions in Idaho, recognizing Idaho's interest in continued growth, economic development and energy security.*

Introduction

In May of 2007, Governor Otter signed Executive Order No. 2007-05. The order, in part, directed all state agencies to implement greenhouse gas (GHG) emission reductions. Each state government agency is responsible for completing a GHG emissions inventory and developing a GHG emissions reduction action plan. This document presents DEQ's contribution to the comprehensive effort by the State of Idaho to reduce GHG emissions.

DEQ was created by the Idaho Environmental Protection and Health Act to ensure clean air, water, and land in the state and to protect the citizens of Idaho from the adverse health impacts of pollution. As a regulatory agency, DEQ enforces various state environmental regulations and administers a number of federal environmental protection laws, including the Clean Air Act, the Clean Water Act, and the Resource Conservation and Recovery Act. DEQ manages a broad range of activities including:

- assessment of environmental problems;
- oversight of facilities that generate air, water, and hazardous waste pollution;
- monitoring of air and water quality;
- oversight of cleanup at contaminated sites; and
- education, outreach, and technical assistance to businesses, local government agencies, and interested citizens.

There is a natural nexus between DEQ's mission and the effort to reduce GHG emissions. Strategies to reduce GHG emissions also reduce emissions of criteria air pollutants, such as nitrogen oxides, volatile organic compounds, sulfur dioxides, and fine particulates. In addition to having public health benefits, such reductions can help areas avoid a National Ambient Air Quality Standard non-attainment designation. Another likely benefit of widespread reduction of GHG emissions is improvement in regional haze.

Purpose

The plan outlined in this report identifies changes DEQ can make in policy, management, purchasing, work practices, and other areas that are likely to reduce the agency's GHG emissions. The plan first identifies DEQ's GHG emissions baseline that will be used to quantify emission reductions, to identify areas in which additional action may be beneficial, and to provide information on how effective particular actions are. It then outlines DEQ's planned actions for reducing GHG emissions.

Baseline Emissions Calculations

For the purpose of this plan, greenhouse gases include carbon dioxide (CO₂), nitrous oxide (N₂O), methane (CH₄), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). These compounds have differing levels of warming potential and atmospheric persistence. In order to streamline the reporting of GHG emissions, climate scientists have developed a convention of reporting emissions as tons per year of carbon dioxide equivalent (CO₂e). To do this, each of the various greenhouse gases is assigned a weighting factor, and emissions of each gas are multiplied by its associated factor. The GHG emissions in this document are reported as CO₂e.

To calculate GHG emissions, DEQ staff categorized emission sources into one of two categories: 1) buildings (which includes electricity and heating), and 2) internal combustion engines (which includes vehicles and equipment). For activities within those categories, appropriate emissions factors developed by the U.S. Environmental Protection Agency (EPA) were used to determine DEQ's baseline (fiscal year 2007) GHG emissions for each DEQ office. We also estimated the emissions that come from employees commuting to and from work. This information is contained in a later section titled Employee Commutes.

In fiscal year 2007 (FY 2007), DEQ emitted a total of 1,042 tons of CO₂e. Figure 1 is a graphical representation of DEQ's total GHG emissions and how they are apportioned.

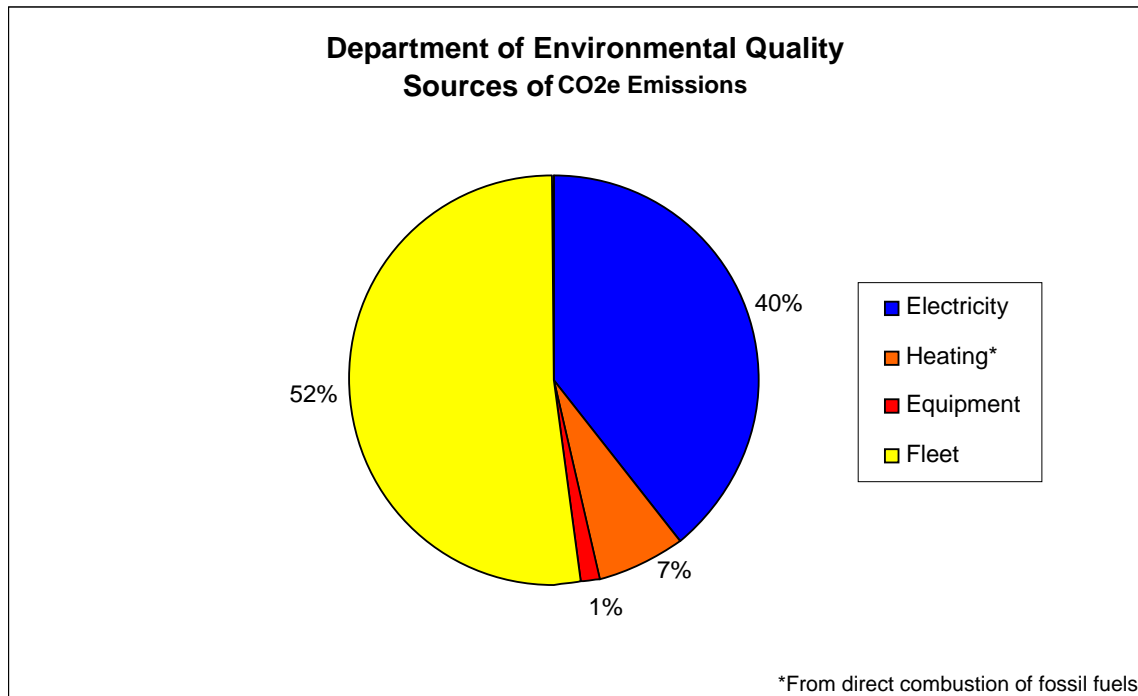


Figure 1. Percentage of DEQ FY 2007 emissions of carbon dioxide equivalent (CO₂e) by activity.

DEQ is one of 15 state agencies that have completed GHG emissions inventories. These agencies vary greatly in number of employees, mission, and activities required to accomplish their missions. For example, some agencies have a relatively large number of facilities that they must heat, cool, and light, while others must use a relatively large number of vehicles and equipment to carry out their missions. Figure 2 provides some perspective on the relative contribution of each agency to the total of approximately 87,500 tons per year of CO₂e.

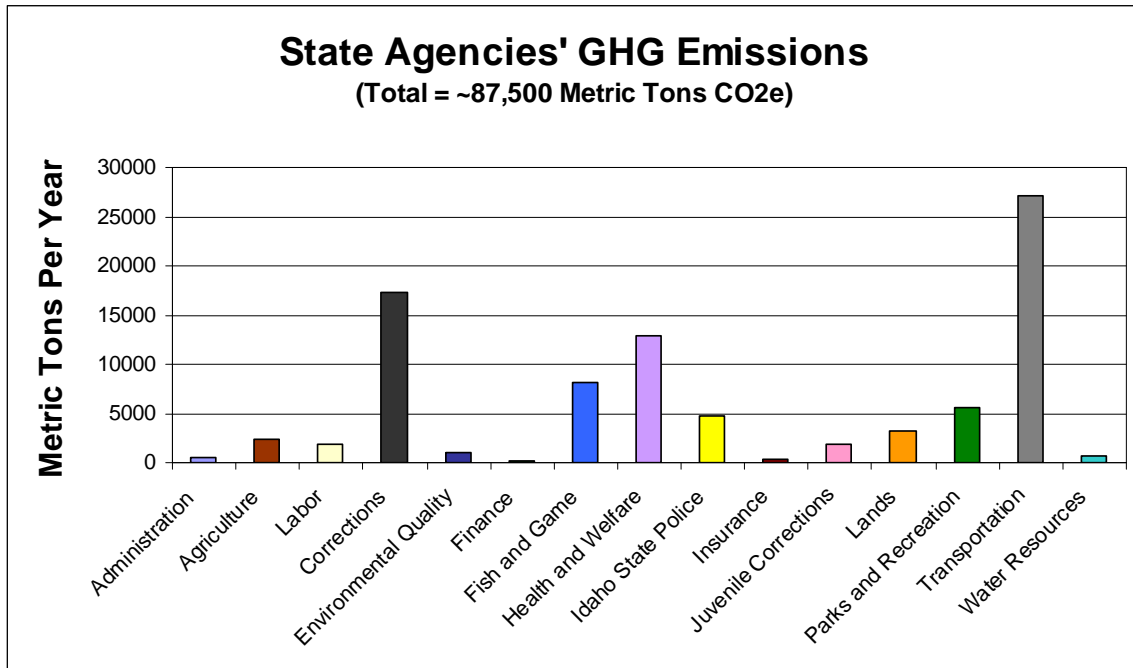


Figure 2. FY 2007 emissions of carbon dioxide equivalent (CO₂e) from 15 state agencies.

Buildings – Heating and Electricity

Greenhouse gases from DEQ buildings are emitted either directly from combustion for heat or indirectly from electricity use. Emissions from heating and electricity accounted for 27% of DEQ's total GHG emissions in FY 2007. Figure 3 shows the combined energy use (heat and electricity) per employee for each office.

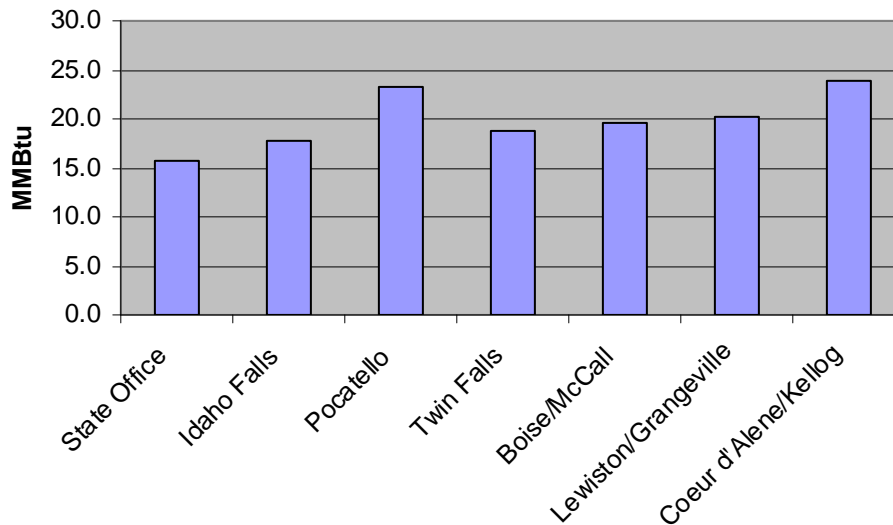


Figure 3. DEQ annual heating and electricity energy use per employee, FY 2007 (MMBtu – million British thermal units).

Heating from Direct Combustion of Fossil Fuel

The amount of emissions resulting from heating, by direct combustion of fossil fuels, of DEQ offices was calculated using established emissions factors (see Appendix A). Most DEQ offices are heated with natural gas. Figure 4 shows the amount of natural gas used by each DEQ office. DEQ's total GHG emissions due to the combustion of natural gas are 73 tons per year. The Grangeville office is heated with fuel oil and used 45 gallons of fuel in 2007.

The State Office and Boise Regional Office use no natural gas. Instead, heating and air conditioning is provided by heat pumps that are powered with electricity. GHG emissions due to heating in the State Office and the Boise Regional Office are, therefore, included in the next section because it is impractical, with the information available at this point, to estimate what portion of electricity usage was for heating in those offices. Specific information on data collection and emissions calculations for heating can be found in Appendix A.

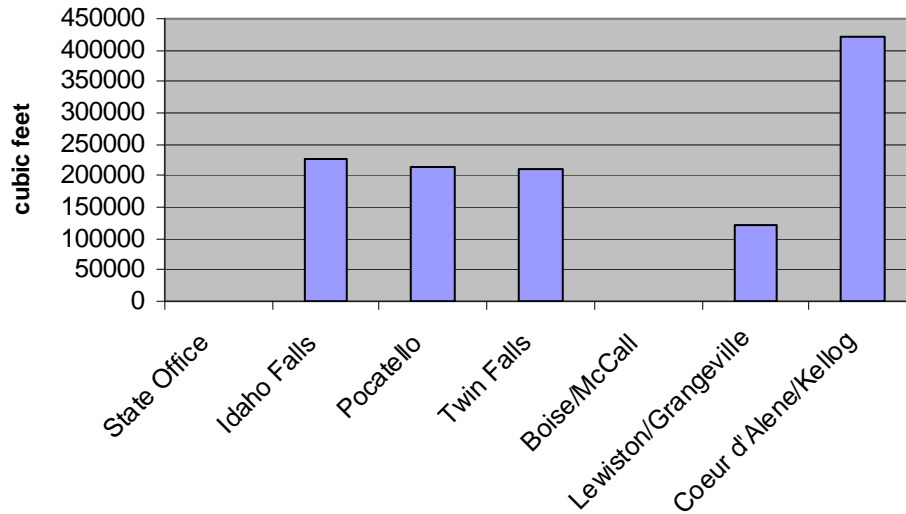


Figure 4. DEQ natural gas use by office, FY 2007.

Electricity

To determine the amount of GHG emissions related to DEQ's electricity consumption, we had to consider the electricity sources. Idaho's electricity is generated by a mix of sources inside and outside of Idaho, including hydroelectric, natural gas, coal, and wind. An emissions factor was developed based on the type of source and the relative amount of electricity provided by that type of source to the power grid in Idaho. The electricity-related emissions were calculated using this emissions factor and the number of kilowatt hours (kWh) of electricity used.

Electricity use by DEQ produced 412 tons per year of CO₂e in FY 2007. Figure 5 shows the electricity usage by office. Specific information on data collection and emissions calculations can be found in Appendix B.

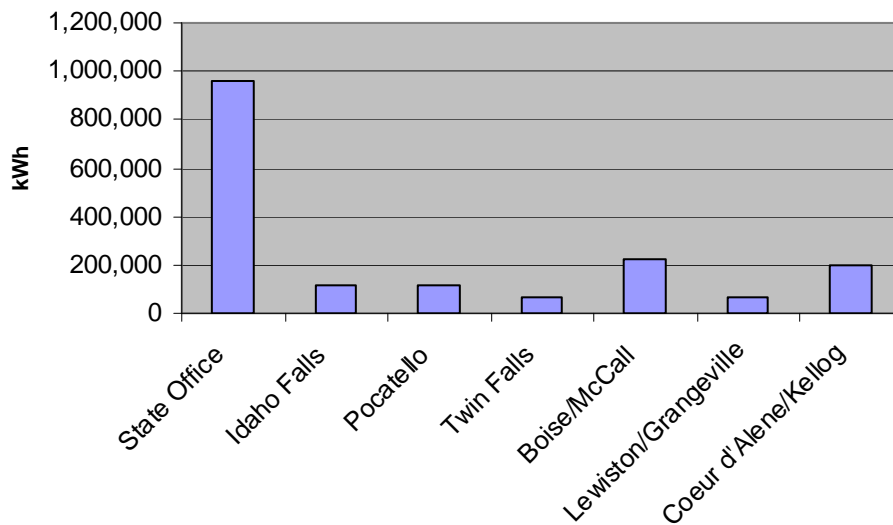


Figure 5. DEQ electricity use by office FY 2007 (kWh – kilowatt hours).

Internal Combustion Engines – Vehicles and Equipment

This section focuses on those activities that involve the burning of fossil fuels within a combustion engine (which includes vehicles and equipment). Equipment includes everything from lawnmowers and weed eaters to generators. Information about calculating emissions from these sources is outlined below.

For fleet vehicles, DEQ collected data on vehicle miles traveled, vehicle type, and fuel type and used EPA’s MOBILE6.2 model to calculate GHG emissions from use of DEQ vehicles. For non-road vehicles and equipment, similar data was entered into EPA’s NONROAD model to determine their emissions. Use of DEQ vehicles and equipment resulted in the emission of 557 tons per year of CO₂e. The number of vehicle miles traveled by each office and the proportion of those miles driven by different types of vehicles are shown in Figure 6. Figure 7 shows the average vehicle miles traveled per employee in each DEQ office. Specific information on data collection and emissions calculations for DEQ vehicles and equipment can be found in Appendix C; the Governor’s executive order on reducing GHG emissions from state vehicles can be seen in Appendix D.

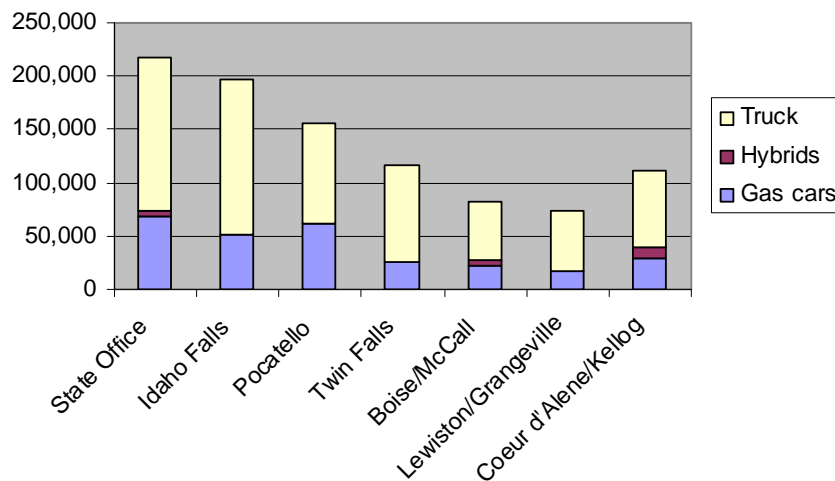


Figure 6. DEQ fleet vehicle miles traveled by office, FY 2007.

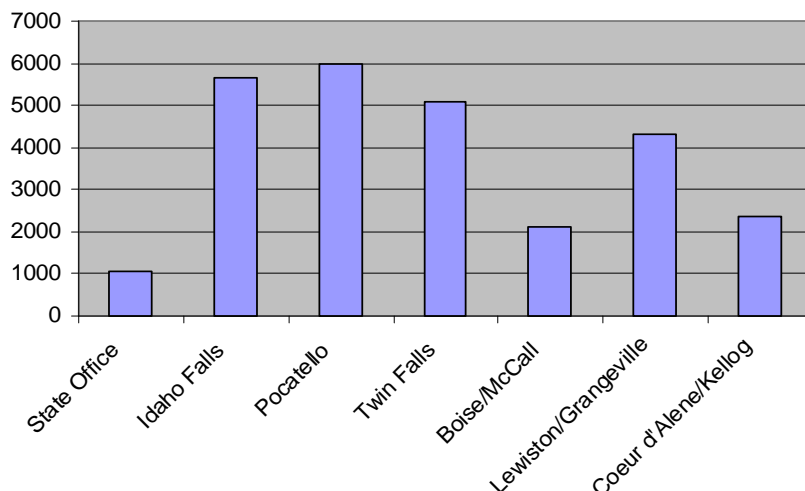


Figure 7. Average annual vehicle miles traveled per employee, FY 2007.

Employee Commutes

To determine the amount of GHG emissions that could be attributed to employee commutes, a survey was developed with specific questions about vehicle types, fuel types, and trip lengths. Data from survey responses were used to calculate emissions for employee commutes. In addition, the survey included questions that will be considered in developing actions to reduce emissions from employee commutes.

Estimated CO₂e emissions due to DEQ employees commuting to and from work are 784 tons per year. Figure 8 demonstrates how the emissions resulting from employee commuting compare to the Department's total baseline emissions discussed previously in the plan.

DEQ has been tracking employees' alternative transportation activities since 2001. Employees' alternative modes of transportation include bike, carpool, vanpool, bus, and walking. In 2001, an average of 22 employees used alternative transportation and reduced vehicle miles traveled by 83,924 miles.

In 2007, an average of 49 DEQ employees used alternative transportation and reduced vehicle miles traveled by 140,339. These numbers include participants in DEQ's newly-implemented telecommuting and condensed work schedule programs. Specific information on data collection and emissions calculations related to employee commutes can be found in Appendix E.

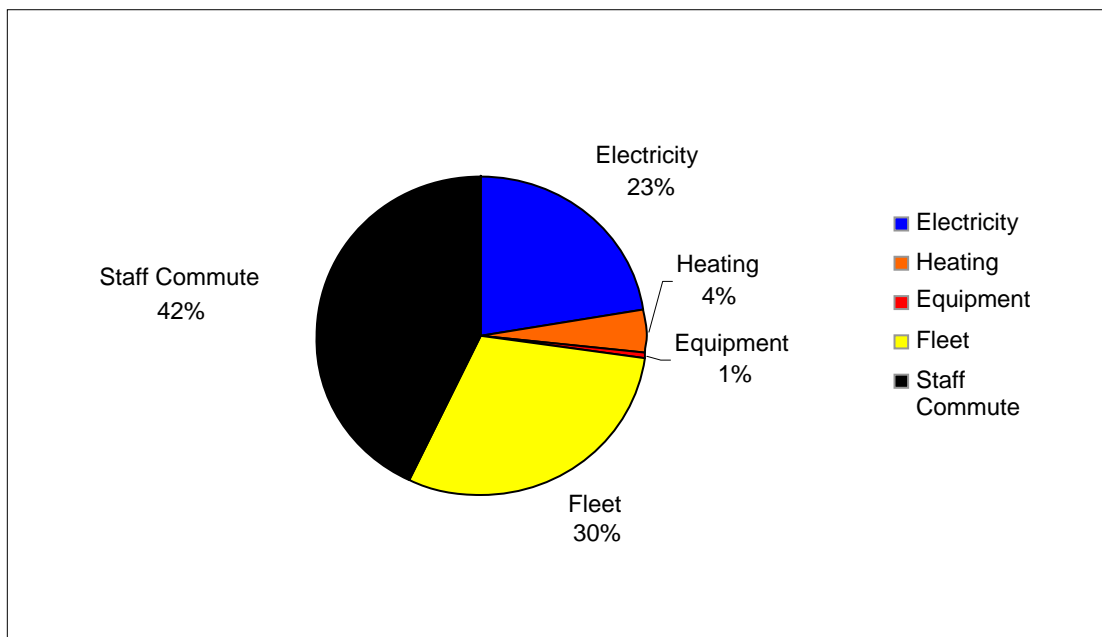


Figure 8. Percentage of DEQ FY 2007 emissions of carbon dioxide equivalent (CO₂e) by activity.

Actions

DEQ has carefully considered the GHG emissions data for FY 2007 and has developed a plan to reduce those emissions. This plan is heavily weighted toward information gathering because good decisions rely on good information. Therefore, while DEQ is taking some specific reduction actions immediately, many initial action items will focus on gathering more information.

High priority will be given to determining what criteria should be applied when deciding whether to take emission reduction actions that will involve up-front costs. In many cases, reducing GHG emissions also reduces operating costs by reducing electricity or fuel usage. However, new equipment may be required to make the reductions, and up-front cost may be substantial.

The primary focus of this action plan is on reducing “direct” GHG emissions—those that are directly due to energy use. However, DEQ intends to explore ways to reduce indirect GHG emissions and ways to include GHG emissions reduction goals in regulatory and outreach programs.

Buildings – Heating and Electricity

DEQ plans to improve heating energy efficiency through a number of initiatives, and will complete the following actions in the timeframes indicated.

Immediately

- Calculate an energy use index (EUI) for each of the DEQ offices. This calculation will be used to assess how our offices compare to buildings in the U.S. Energy Information Administration’s Commercial Buildings Energy Consumption Survey and in Leadership in Environmental and Energy Design (LEED) certified buildings.
- Implement DEQ’s “Operating Guidelines for State Occupied Buildings” (Appendix F).

By June 30, 2008

- Complete a benchmark assessment of DEQ offices using the Energy Star Portfolio Manager tool. This tool will allow DEQ to assess our energy and water costs, identify where savings are possible, and track results. This information will help DEQ prioritize an energy audit schedule.
- Assess energy reduction potential in the information technology (IT) system. The assessment will include a power study of the network room and investigation of the following possibilities: technologies to turn off power to servers when they are not in use (in a safe and systematic manner that preserves functionality), consolidation of servers, and implementation of virtualization.

By June 30, 2009

- Complete energy audits for DEQ offices. Based on the results of the audits, DEQ will evaluate the expected efficiency improvements, the projected costs for improvements, the expected energy cost savings, the expected GHG emission reductions, and the expected time required to make the improvements. This information will be used to prioritize projects and develop an implementation schedule.
- Seek improvements in computer equipment energy efficiency by positioning equipment to efficiently control airflow and prevent hot airflow from recirculating back to the IT equipment cooling intakes, sealing all leaks, replacing older equipment with newer models, upgrading the energy efficiency of the network room cooling system, and installing motion sensor lights to turn off lights when not needed.

DEQ will work with the Department of Administration to develop criteria that requires energy efficiency to be considered in making building space lease decisions.

Internal Combustion Engines – Vehicles and Equipment

In accordance with Executive Order No. 2007-21 (see Appendix D), DEQ plans to reduce emissions from vehicle use in the course of business. DEQ will complete the following actions in the timeframes indicated.

By June 30, 2008

- Develop a tracking tool for vehicle and fuel use that will allow DEQ to assess how, when, and why DEQ vehicles are used and then develop strategies for maintaining our level of service with fewer miles traveled. The goal will be to have a tool that will allow DEQ to review vehicle use information at least monthly and make adjustments as necessary. In addition, data from this tool will be used to optimize vehicle use and to direct future vehicle purchases.
- Complete a review of DEQ vehicle maintenance procedures. These procedures will be modified as necessary to ensure optimum vehicle performance and to reduce GHG emissions (for example, checking tire pressure regularly, washing cars only when needed rather than after each trip). The modified procedures will identify who will be responsible for various types of maintenance and the maintenance schedule. (Appendix G).
- Review its current fleet and create a vehicle purchasing plan that complies with the Governor's executive order on reducing GHG emissions from state vehicles.

By July 1, 2008

Implement the tracking tool.

Employee Commutes

By continuing to encourage alternative work schedules and use of alternative transportation, DEQ expects to further reduce GHG emissions.

Alternative Work Schedule Policy

DEQ currently has an alternative work schedule policy. This policy allows DEQ to schedule and deploy our workforce to achieve outstanding customer service and optimal productivity and to provide leadership in promoting environmental quality. Alternative work schedules offer the ability to develop working arrangements that can contribute to higher productivity, enhance staff morale, assist in recruitment and retention of employees, and reduce commute-based traffic congestion and air pollution. Three types of alternative work schedule are available to DEQ employees: flexible work schedule (FWS), compressed work schedule (CWS), and telecommuting work schedule (TWS). The use of alternative work schedules has already achieved the following benefits:

- FWS – At present, 28% of DEQ staff take advantage of flexible work schedules. While these schedules do not reduce commute trips, they do help reduce road congestion resulting in smoother traffic flow and time spent idling.
- CWS – 4% of DEQ staff have compressed work schedules. Depending on the schedule chosen, CWSs can reduce commute trips up to 20%.
- TWS – 4% of DEQ staff telecommute, for an estimated 850 fewer commute trips per year.

Alternative Transportation

DEQ encourages employees to use alternative transportation through these efforts:

- Participating in the Milestone Project, an alternative transportation initiative conceived and developed by Wirestone, LLC. The Milestone Project is a competition among businesses, organizations, and agencies that encourages alternatives to automobile use.
- Continuing to track employee participation in alternative transportation and report estimated GHG emission reductions.
- Using the results of the employee survey described earlier and included in Appendix E to assess possible actions that would remove obstacles to greater use of alternative transportation.

Additional Actions

There are a number of additional actions DEQ plans to take to reduce our direct and indirect GHG emissions.

Reduce/Reuse/Recycle

Gang Green is an internal team devoted to finding solutions to the ever-growing problem of waste and what to do with it. This employee team was formed in the fall of 2007 and has 10 members from a broad range of programs and departments. The 2008 Gang Green Goals are to:

- Create a forum for new ideas.
- Establish Gang Green as a recycling resource.
- Expand and enhance DEQ's recycling program.
- Inform DEQ employees about recycling and reuse.
- Encourage employees to become involved in recycling.

Gang Green has already published an employee newsletter on the DEQ intranet front page and expanded the internal recycling program.

DEQ will examine our waste stream and look for ways to reduce the largest contributions.

DEQ will explore an office supply "freecycle" system. Freecycling provides opportunities to recycle items through a listing of items that someone wants to give away or that someone would like to acquire.

Purchasing

Purchasing will take the following actions:

- Implement and comply with DEQ's "Green" Purchasing Policy (Appendix H).
- DEQ will work with the Division of Purchasing to develop environmentally preferable purchasing criteria that will consider such things as recycled content, least packaging, sustainability, ease of recycling, etc.

Pilot projects

DEQ will explore involvement in pilot projects that have GHG emissions reduction potential.

Landscaping

DEQ will explore whether office landscaping can be adjusted to help accomplish our GHG emissions reduction goals.

Continuous Improvement

DEQ is committed to follow-through and continuous improvement of our GHG emissions reduction strategies. This will include taking the following actions in the timeframes indicated.

Immediately

- Form a GHG emissions reduction team, with at least one member from each DEQ office, that will meet at least quarterly. The team will evaluate progress, explore how GHG emissions reduction goals can be incorporated into programs, and explore ways to assign dollar values to GHG emissions reductions.
- Develop a central mechanism for reporting/refining emissions inventory information and for tracking trends.

By June 30, 2008

DEQ will complete the fiscal year 2008 GHG emissions inventory.

By December 31, 2008

DEQ will update this plan to include actions that will be taken based on energy audit information and the GHG reductions and energy cost savings expected as a result of those actions.

Appendix A – Data and Process Used to Calculate Emissions Due to Heating

Emissions factors have been developed for all forms of combustion, whether natural gas in a furnace, coal to fire an industrial boiler, or fuel oil to run an electricity generator. Emission factors facilitate calculation of resulting emissions. Each emission factor quantifies the amount of a particular component (such as carbon dioxide or nitrous oxide) that is emitted from the combustion of a specific type of fuel under specific conditions. When the emission factor (sometimes called a multiplier) is multiplied by the amount of exhaust (usually expressed in pounds or tons), the result is the total quantity of that particular component (usually in pounds or tons) that is emitted with that amount of that type of exhaust.

The emissions factors are derived from studies and tests completed for the sole purpose of finding an emissions rate (the total amount in any given amount of time such as an hour or a year) for a specific pollutant emitted by that form of combustion at a specified rate of fuel consumption.

Emissions factors were applied to the combustion used for heating in each DEQ office. For example, in an office that used 10 therms of natural gas to heat the building during the year, the number of therms multiplied by the appropriate emissions factors will give the emissions for every component of concern due to that natural gas combustion. In cases of a building that is shared with other tenants, the fraction of space in the building occupied by DEQ's office was multiplied by the total usage in the building to arrive at DEQ's emission rate.

Appendix B – Data and Process Used to Calculate Emissions Due to Electricity Use

In Idaho, electricity is mainly supplied by three power companies. The electricity provided by these companies is generated both within and outside of Idaho. Within Idaho, most electricity is produced by hydroelectric plants; a small amount is produced by natural gas plants. Electricity generated outside the state and used in Idaho is largely generated with fossil fuels, including coal, natural gas, and oil.

We calculated the GHG emissions resulting from DEQ's electricity usage by taking the amount of power used (in kilowatt hours – kWh) and multiplying it by emissions factors that correspond to the fraction representing each of the GHG-emitting types of power generation used to produce that power (i.e., coal, natural gas, etc.) as reported by each of the three power companies. We then subtracted out the percentage of emissions that correspond to the percentage of power produced hydroelectrically in Idaho that year, because it produces no GHG emissions.

A formula flow similar to this was used:

- 1) kWh x (times) emissions factors = (equals) emissions for 100% imported electricity usage
- 2) Emissions for 100% electricity usage - (minus) percentage of hydroelectrically generated electricity = (equals) total GHG emissions from electricity usage

Appendix C – Data And Process Used to Calculate Emissions Due to DEQ Vehicles and Other Internal Combustion Equipment

DEQ currently has the following vehicles and equipment with internal combustion engines:

Gas automobiles	24
Hybrid automobiles	4
Gas trucks	73
All-terrain vehicles	2
Chain saws less than 6 horsepower	2
Leafblowers/vacuums	1
Generator sets	5
Outboard motors	5
Personal watercraft	1
Inboard/stern drive	1

Following is a brief description of the methods applied to the information and data gathered by DEQ.

Vehicle Fleet

There are nine different vehicle categories in the MOBILE6.2 model used by DEQ. The DEQ fleet only has vehicles in three of those nine categories (gas automobiles, hybrid automobiles, and gas trucks). This model determines emissions factors for each vehicle class by pollutant. We took the number of vehicles by type and the associated vehicle miles traveled and multiplied them by the emissions factors generated by the model during the latest model run. This approach was used to save DEQ personnel time and budget, as running the model requires many inputs such as 100-year average temperatures, gasoline Reid vapor pressures, etc.

The emissions factors were generated by the MOBILE6.2 model using fleet-mix characteristics derived from vehicle identification number (VIN) decoding that DEQ had previously completed for all registered vehicles in Idaho (personal, business, and government). This last step must be taken to achieve accurate vehicle fleet-mix information. This information is readily available and is used for multiple Air Quality Program purposes. Use of data from the latest run of the MOBILE6.2 model allowed the GHG emission calculations to be conservative since most state agency fleets are newer than the entire group of vehicles registered in Idaho. DEQ used calculator programs and spreadsheets already created to complete the estimates, further saving time and budget.

The calculation flow is as follows:

The number of vehicles in a category x (times) the specific pollutant emissions factors from MOBILE6.2 and miles driven to get (equals) annual emissions by pollutant type for a vehicle class in the agency's fleet.

Non-Road Vehicle and Equipment Fleet

DEQ uses EPA's NONROAD model to calculate emissions from non-road vehicles and power equipment. The model uses previous-year inventory data, surveys, and studies to generate average emissions factors for typical uses of these types of vehicles and equipment. We applied the emissions factors from the latest run of the NONROAD model to the data gathered from all DEQ offices. This also saved personnel time and budget. The NONROAD model takes into account that the average usage time is unknown when applying an emissions factor or creating an emissions rate.

The calculation flow is as follows:

The number of each type of equipment x (times) each specific pollutant emissions factor from the NONROAD model to get (equals) total annual emissions by pollutant for each type of equipment.

Appendix D – Governor’s Executive Order 2007-21



The Office of the Governor

THE OFFICE OF THE GOVERNOR
EXECUTIVE DEPARTMENT
STATE OF IDAHO
BOISE

EXECUTIVE ORDER NO. 2007-21

ESTABLISHING A POLICY TO REDUCE FOSSIL FUEL USE AND GREENHOUSE GAS EMISSIONS FROM STATE VEHICLES

WHEREAS, the State of Idaho has demonstrated leadership by establishing policies to reduce air pollution, wasteful, uneconomical and unnecessary uses of energy and greenhouse gas emissions caused by state government; and

WHEREAS, emissions from vehicles are a major source of greenhouse gas gases in Idaho as well as a major source of air pollution in Idaho’s urban areas; and

WHEREAS, to perform their duties and service the citizens State of Idaho departments, offices and agencies own or lease a significant fleet of motor vehicles; and

WHEREAS, the State of Idaho can and should lead by example managing its state vehicle fleet to improve and protect air quality, reduce greenhouse gas emissions and reduce the amount of fossil fuels purchased and used; and

WHEREAS, reducing fossil fuel use and increasing fuel efficiency in the state’s vehicle fleet will not only reduce greenhouse gas and air pollutant emissions but will also maximize efficiency in state government operations and reduce annual operating costs;

NOW, THEREFORE, I, C.L. “BUTCH” OTTER, Governor of the State of Idaho, by the authority vested in me under the Constitution and the laws of the State of Idaho do hereby order the following:

1. All executive branch departments, agencies and offices of the State of Idaho shall decrease the amount of gasoline and diesel used in State vehicles by:

- a. increasing the fuel economy of its vehicles;*
- b. increasing the operating efficiency; and*
- c. reducing the number of miles driven by employees.*

2. All executive branch departments, agencies and offices of the State of Idaho shall limit the purchase or lease of four-wheel drive sport utility vehicles and similar specialty vehicles to situations where there is a clear business need or the mission of the entity requires such vehicles.

3. All executive branch departments, agencies and offices of the State of Idaho shall give priority to the purchase and use of hybrid gas/electric and other fuel efficient/low emission and new petroleum efficient technology vehicles.

4. The Division of Purchasing will make available to all departments and agencies a list of available vehicle purchasing contracts, which will identify vehicles that meet the requirements of this executive order. Any purchase outside this list will need written justification signed by the director or administrator of the entity.

5. The Division of Purchasing will provide the Department of Environmental Quality and Office of the Governor a quarterly vehicle purchasing report.



IN WITNESS WHEREOF, I have hereunto set my hand and caused to be affixed the Great Seal of the State of Idaho at the Capitol in Boise on this 20th day of December in the year of our Lord two thousand and seven, and of the Independence of the United States of America the two hundred thirty-second and of the Statehood of Idaho the one hundred eighteenth.

A blue ink signature of C.L. "Butch" Otter, written in a cursive style.

C.L. "BUTCH" OTTER
GOVERNOR

A black ink signature of Ben Ysursa, written in a cursive style.

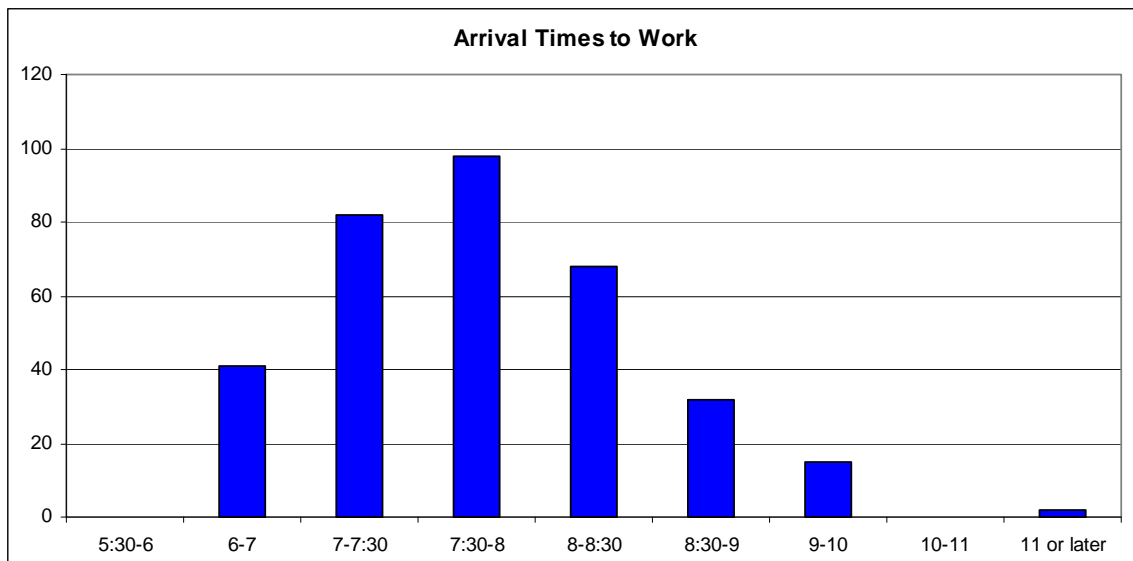
BEN YSURSA
SECRETARY OF STATE

Appendix E – Employee Survey on Commuting and Other Emissions-Related Matters

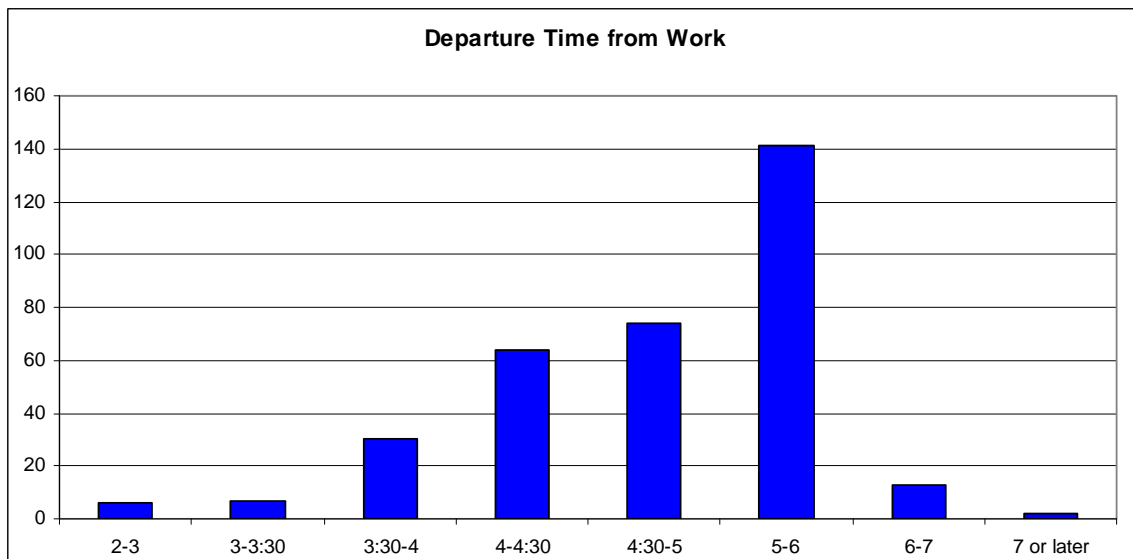
DEQ employees were asked to complete a survey that would allow calculation of emissions due to commuting. In addition, they were asked a number of questions designed to gain an understanding of employee behavior and to obtain their input on issues related to GHG emissions reduction. Results are graphically displayed below, along with the complete set of responses to questions that asked for ideas and comments.

Schedule

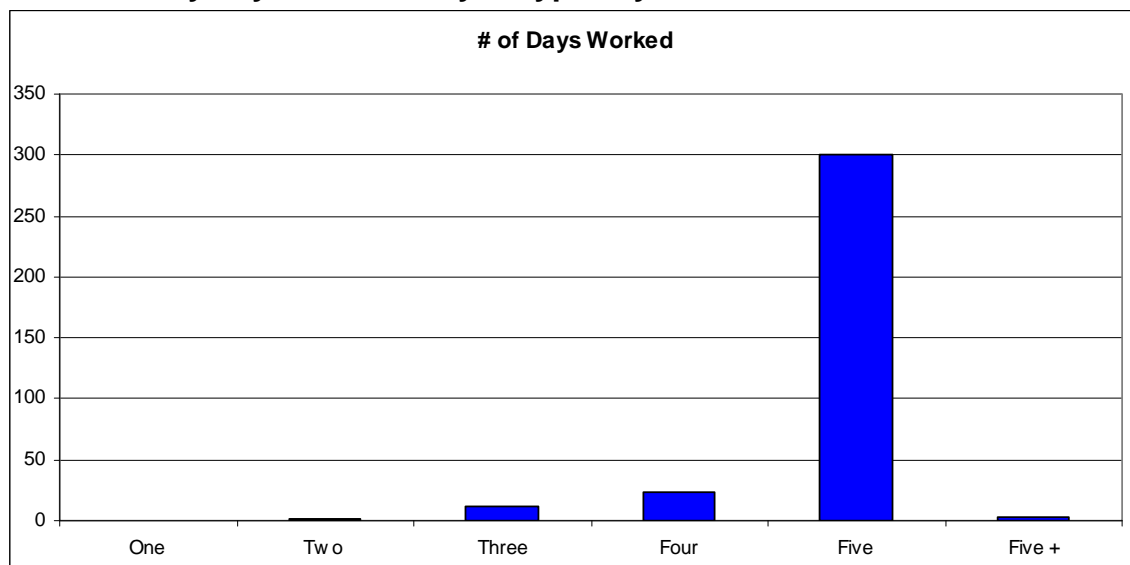
1. What time do you typically arrive for work?



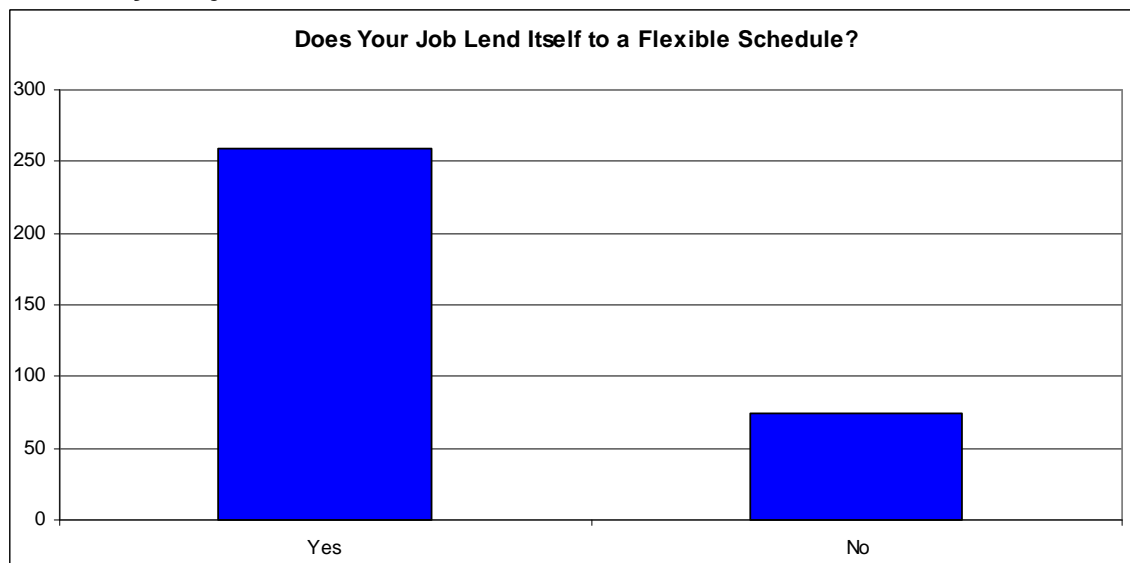
2. What time do you typically leave work?



3. How many days a week do you typically work?

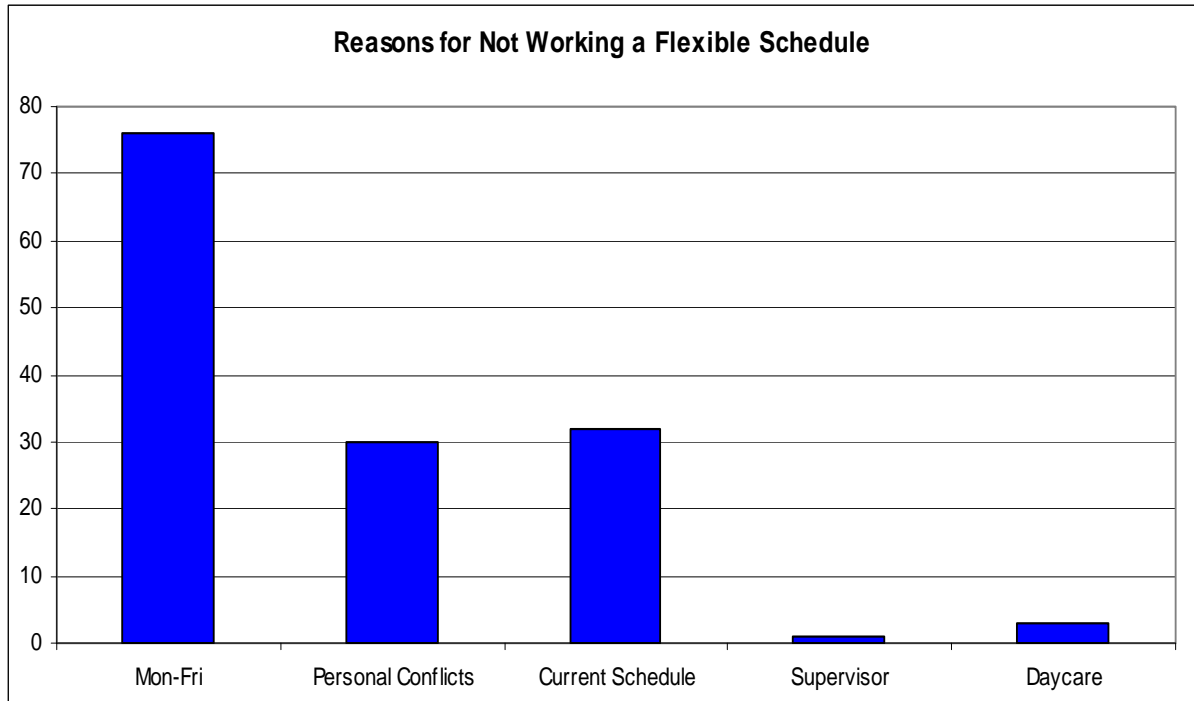


4. Does your job lend itself to a flexible schedule?

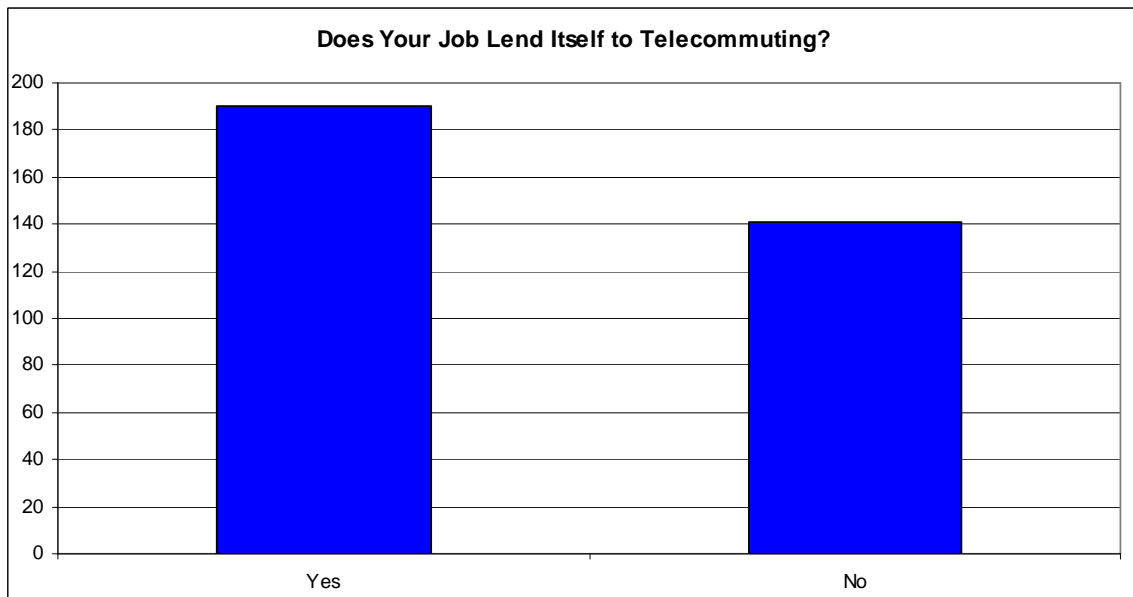


5. If you are unable to work a flexible schedule, why not?

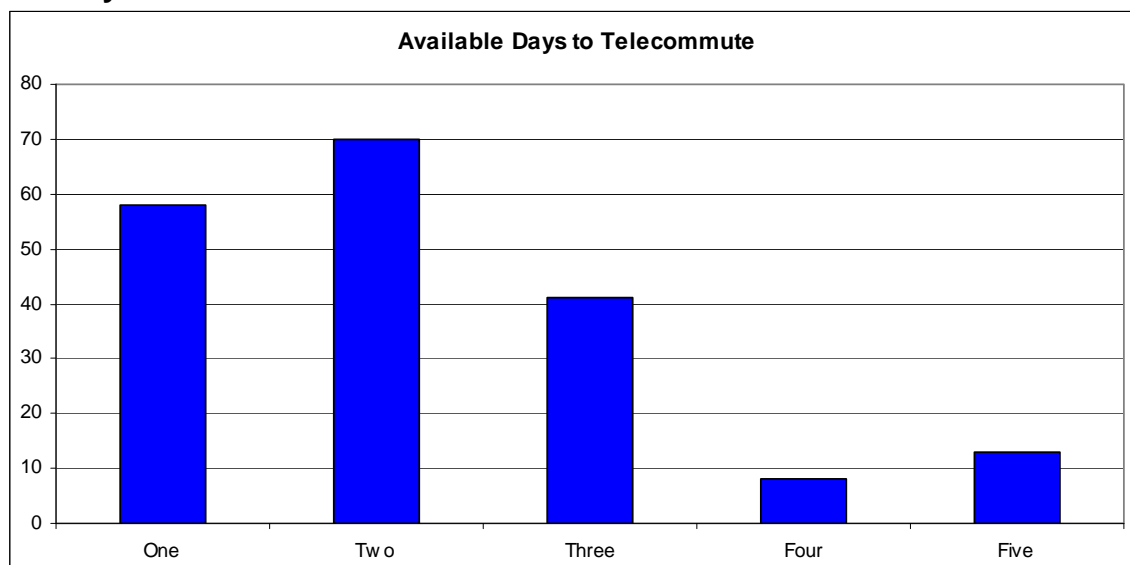
My job requires me to work Monday through Friday	I have personal conflicts with working longer days	I prefer my current schedule	I am a supervisor/administrator	I have to pick my child up from daycare
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6. Does your job lend itself to telecommuting?

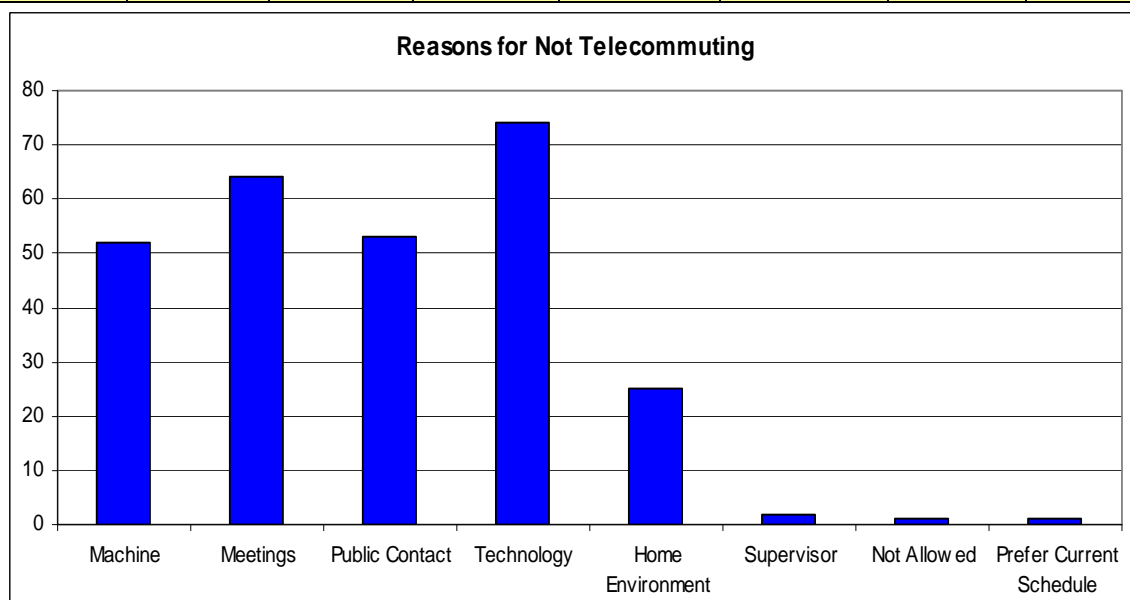


7. If your job does lend itself to telecommuting, how many days a week would you be able to telecommute?



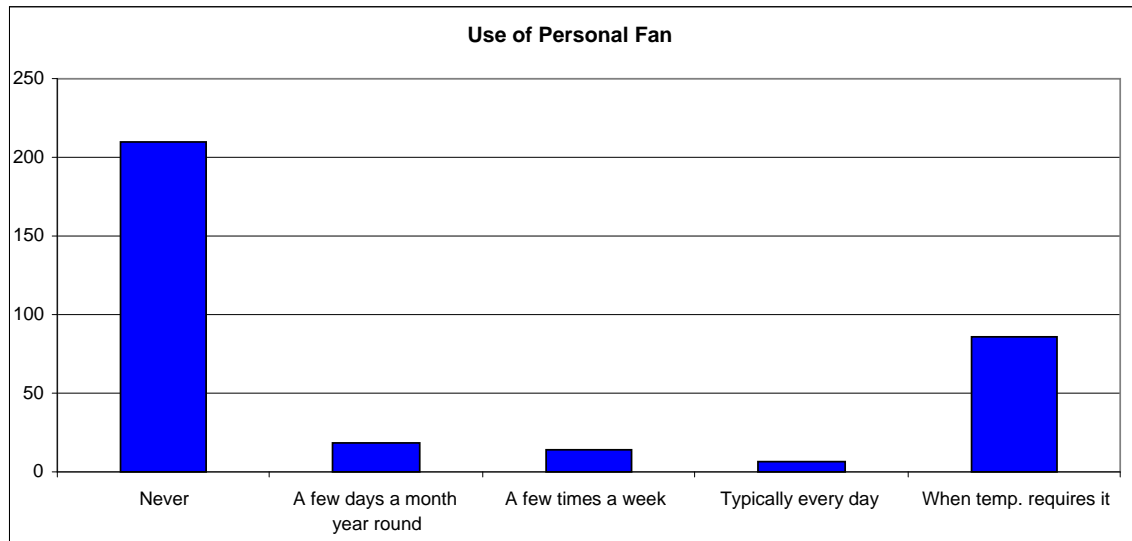
8. If you are unable to telecommute, why not?

I need a specific machine to do my job	I regularly attend meetings	My position includes scheduled public contact	I lack the necessary technology at home	My home environment is not conducive to working	I am a supervisor/administrator	It's not allowed	I prefer my current schedule
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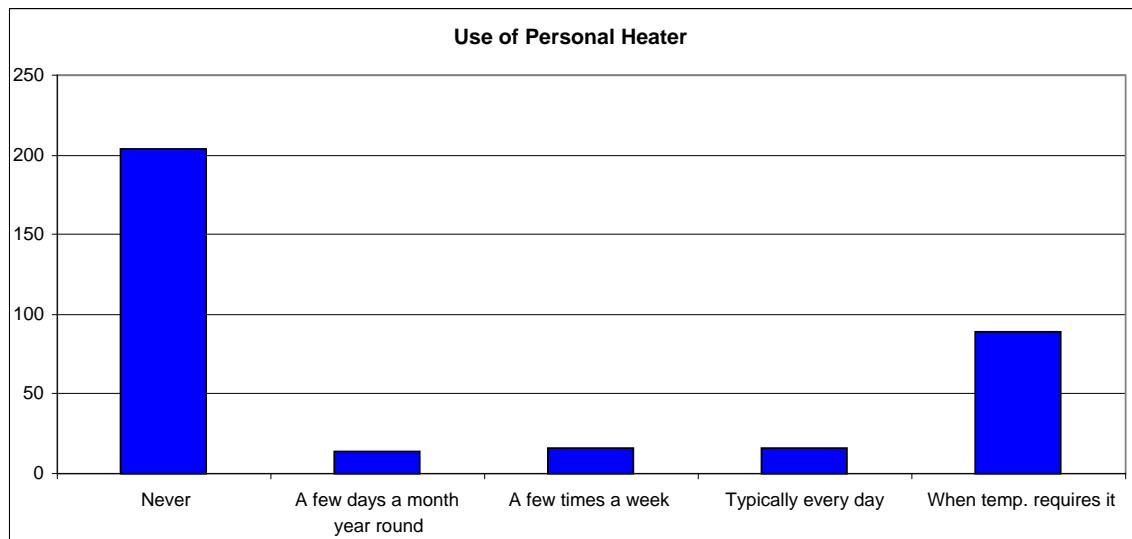


Heating/Cooling

1. How often do you use a personal fan at your desk?

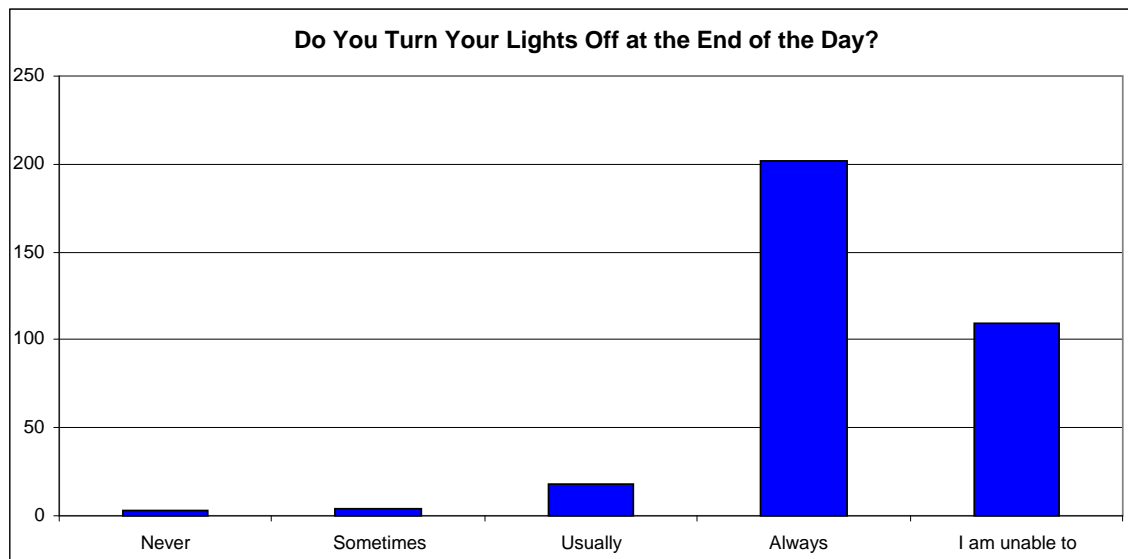


2. How often do use a personal heater at your desk?

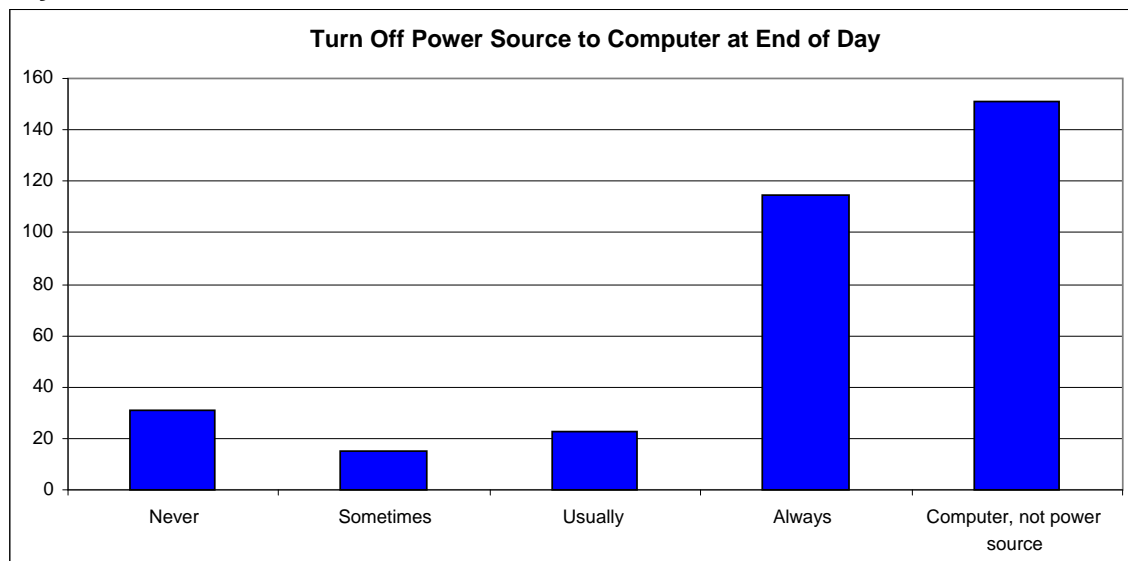


Lighting/Electronics

1. Do you turn your lights off at the end of the day (including desk lamps)?

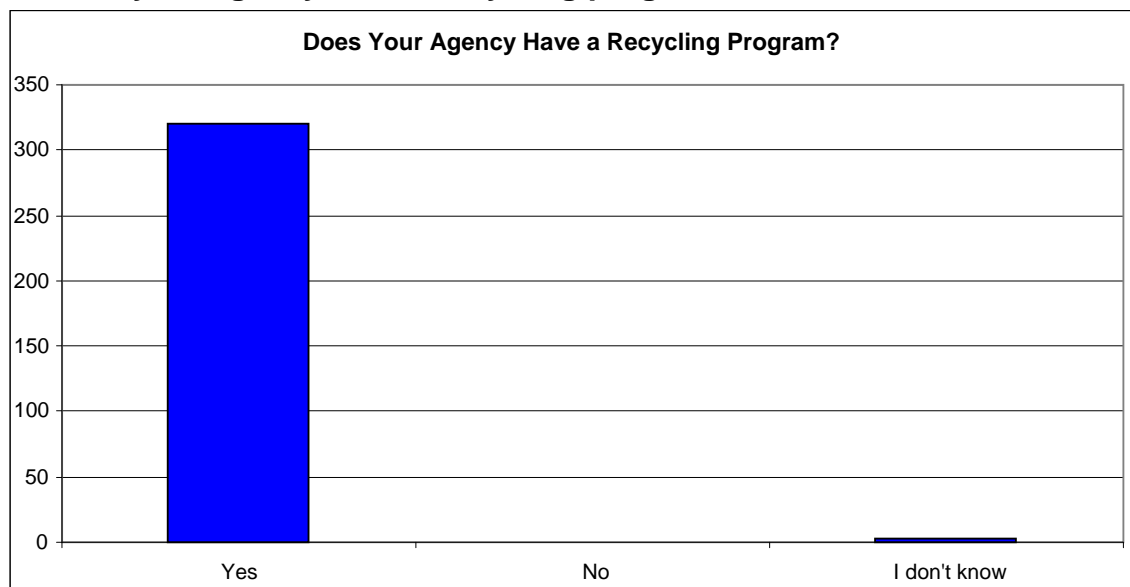


2. Do you turn off the power source to your computer at the end of the day?

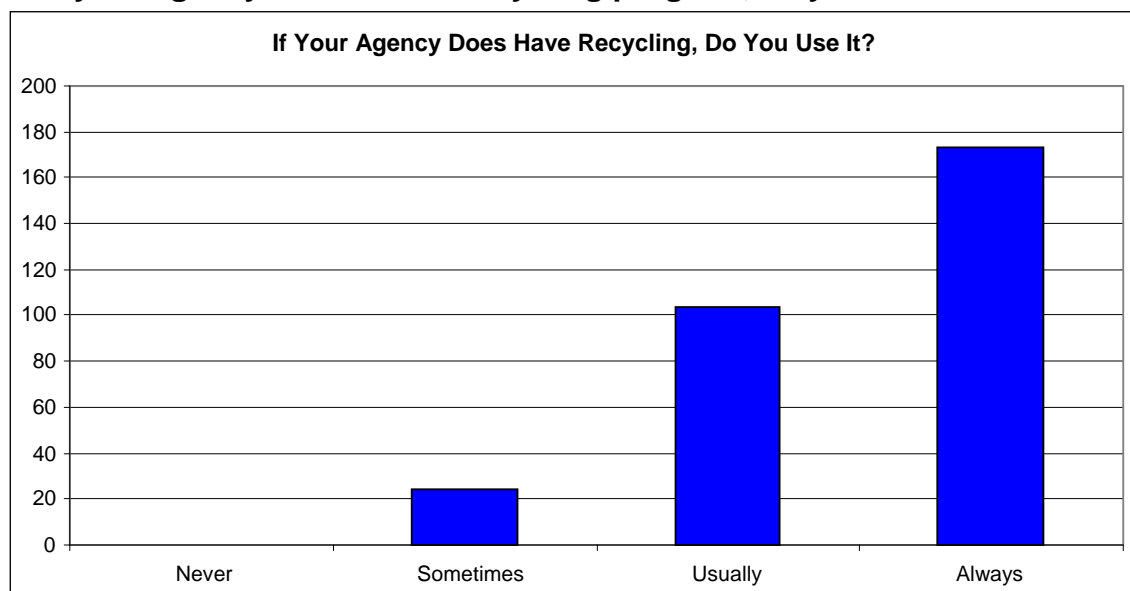


Recycling

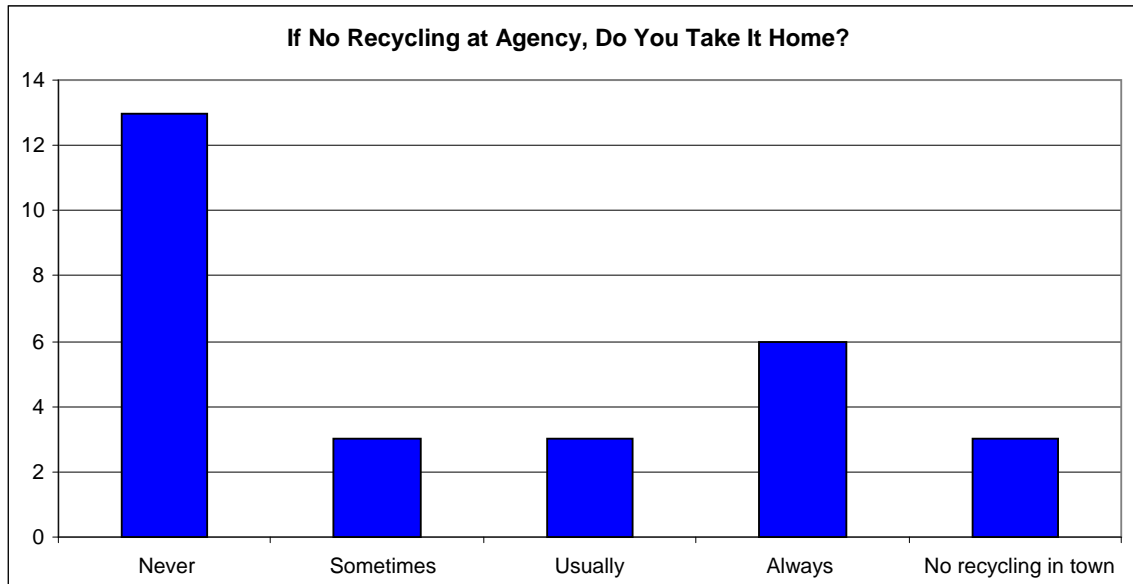
1. Does your agency have a recycling program?



2. If your agency does have a recycling program, do you use it?



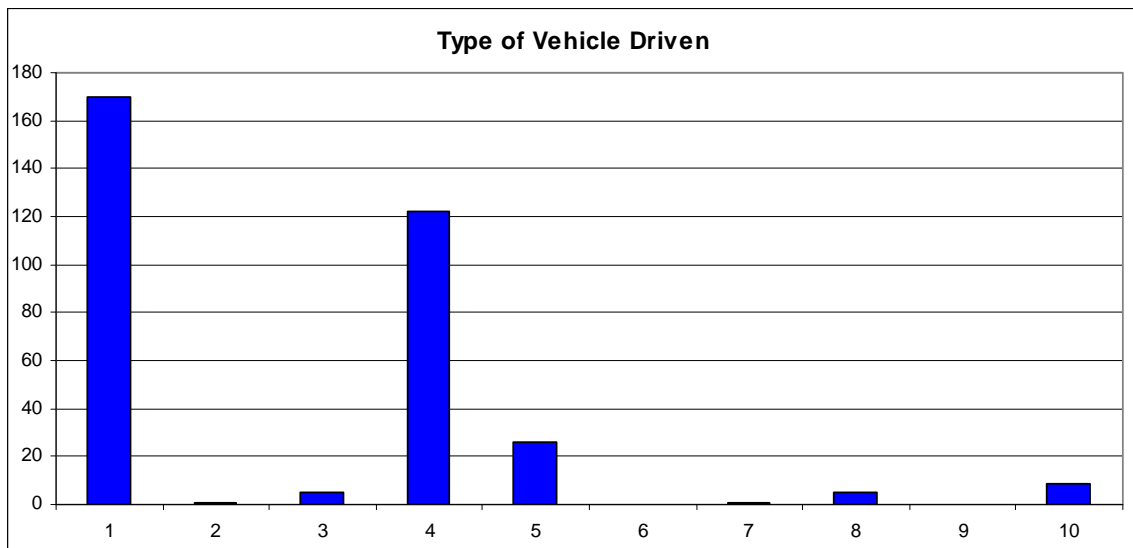
3. If your agency doesn't have a recycling program, do you take your recyclables home for recycling?



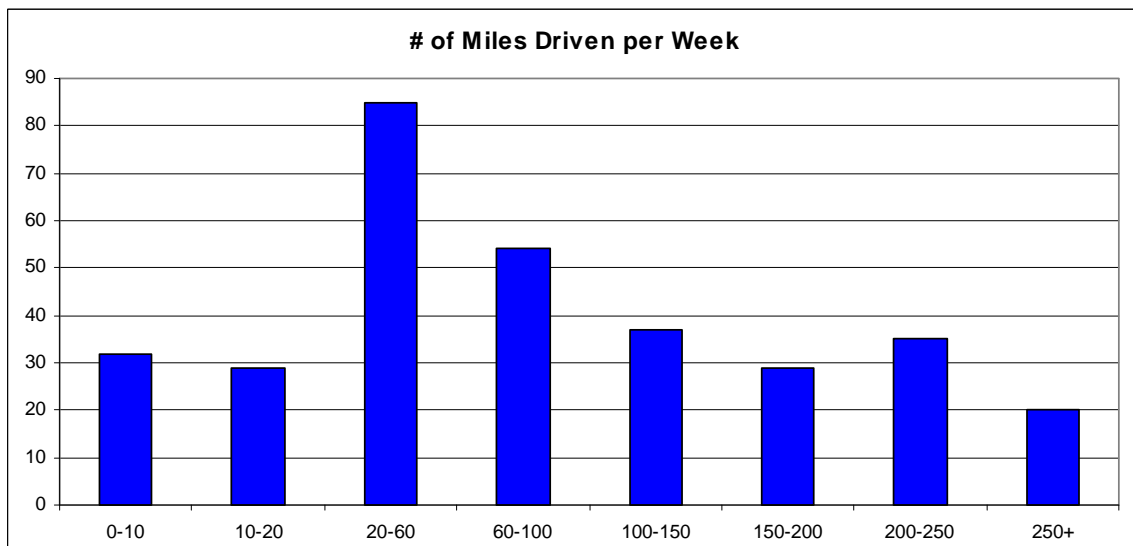
Transportation

1. What type of personal vehicle do you drive to work and within work hours for personal errands?

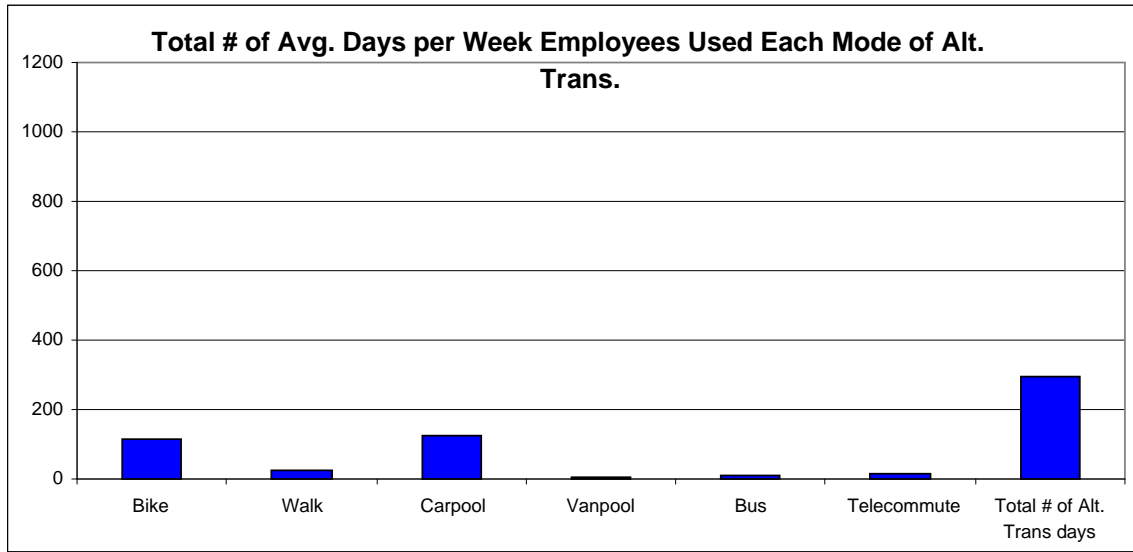
(1) Gas-powered auto- mobile	(2) Diesel-powered automobile	(3) Hybrid automobile	(4) Gas-powered pickup truck, SUV, Minivan (≥ 6,000 lbs)	(5) Gas-powered pickup truck, SUV, Minivan (6,001-12,000 lbs)
(6) Heavy-duty gas- powered vehicle (≤ 12,001 lbs)	(7) Diesel-powered pickup truck, SUV, minivan (≥ 6,000 lbs)	(8) Diesel-powered pickup truck, SUV, minivan (6,001- 12,000 lbs)	(9) Heavy-duty diesel- powered vehicle (≤ 12,001 lbs)	(10) Motorcycles



2. How many miles do you drive your personal vehicle per week to and from work and for personal errands within work hours?



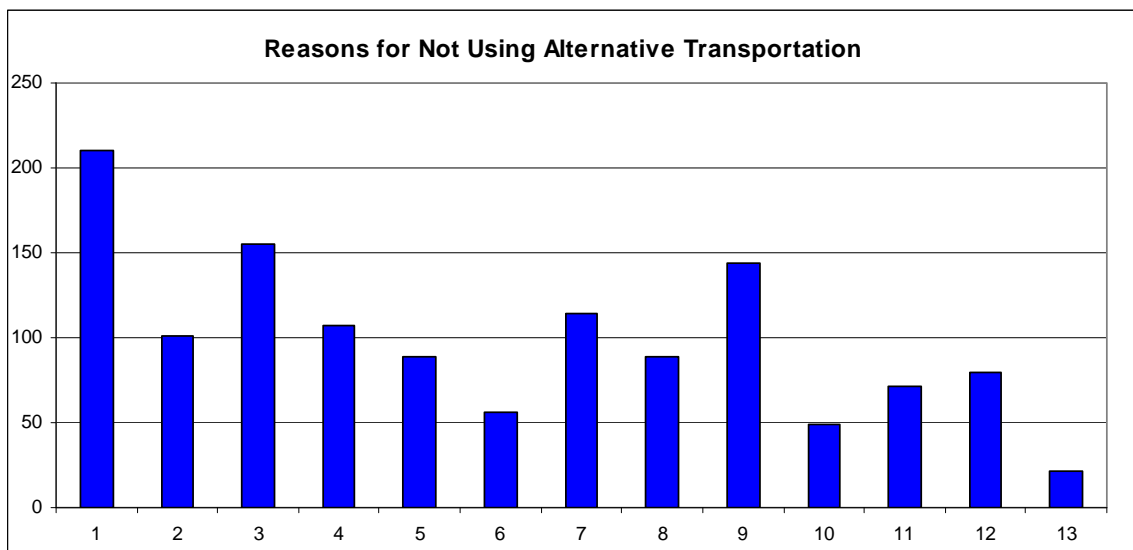
3. On average how many days per week in FY 07 did you use each mode of alternative transportation to get to work and/or telecommute?



* NOTE: Max # of possible total alt. transportation days = 1095

4. If you do not use alternative transportation or do not use it regularly, what are your reasons for not doing so?

(1) I live too far from work	(2) There is too much traffic	(3) It does not fit my schedule	(4) The weather is too hot/cold	(5) I don't know anyone to carpool with	(6) I don't know its schedule	(7) I need my car to run errands
(8) It takes too long	(9) There isn't a route by my house	(10) It is not consistent enough	(11) I would have to wake up earlier	(12) I don't want to	(13) I don't see the need to	



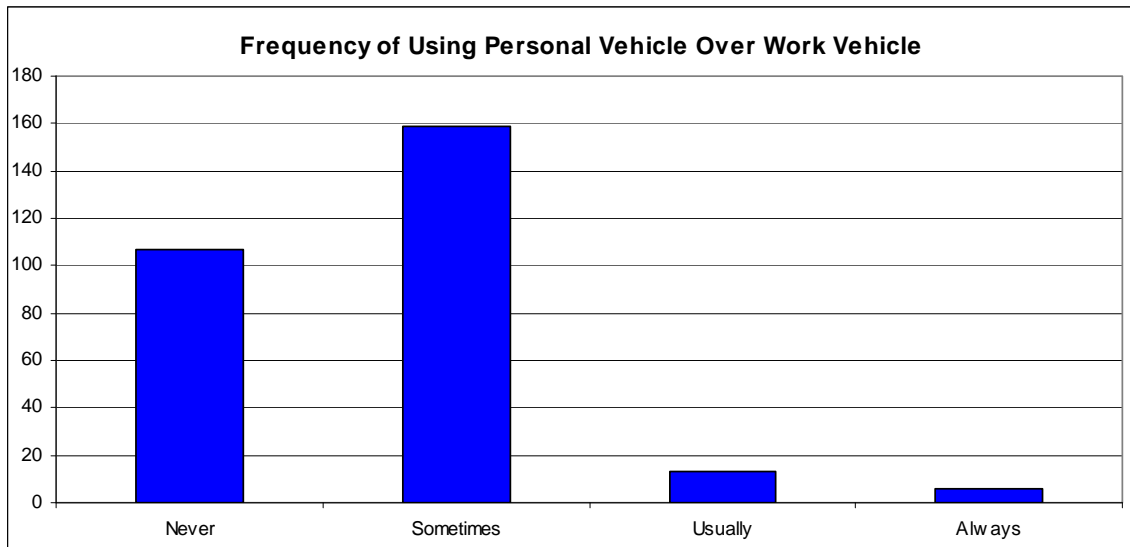
For each of the reasons indicated for not using alternative transportation, respondents were then asked to specify which of the alternative transportation modes they did not use for that particular reason. Respondents could indicate one or more transportation modes for each reason. Therefore, the number of responses for each of the transportation modes for a given reason adds up to more than the total number of responses for that reason. For example, 210 respondents said that “I live too far from work” was a reason they did not use alternative transportation. Some of them indicated more than one specific mode of transportation being not useful because they were “too far from work.” So responses for bike, walk, bus, vanpool, and carpool for this reason add up to 373 even though they came from only 210 respondents. The table below shows the numbers and percentages of these mode-specific responses.

Reasons for not using alt. trans.	Bike	Walk	Bus	Vanpool	Carpool	Response Count
I live too far from work	57.6% (121)	98.6% (207)	12.9% (27)	5.7% (12)	2.9% (6)	210
My route to work has too much traffic	94.1% (95)	66.3% (67)	4.0% (4)	3.0% (3)	2.0% (2)	101
It does not fit my schedule	43.9% (68)	45.2% (70)	63.2% (98)	56.1% (87)	52.9% (82)	155
The weather is too hot/cold	90.7% (97)	71.0% (76)	3.7% (4)	0.9% (1)	0.0% (0)	107
I don't know anyone to carpool with	2.2% (2)	1.1% (1)	4.5% (4)	46.1% (41)	96.6% (86)	89
I don't know its schedule	3.6% (2)	1.8% (1)	78.6% (44)	57.1% (32)	25.0% (14)	56
I need my car to run errands	64.0% (73)	54.4% (62)	68.4% (78)	74.6% (85)	76.3% (87)	114
The bus takes too long	2.2% (2)	1.1% (1)	95.5% (85)	5.6% (5)	5.6% (5)	89
There isn't a bus route near my home	2.1% (3)	0.0% (0)	97.2% (140)	6.9% (10)	2.1% (3)	144
It is not consistent enough	12.2% (6)	12.2% (6)	81.6% (40)	26.5% (13)	38.8% (19)	49
I would have to wake up earlier	69.0% (49)	64.8% (46)	50.7% (36)	28.2% (20)	21.1% (15)	71
I don't want to	50.0% (40)	48.8% (39)	53.8% (43)	65.0% (52)	61.3% (49)	80
I don't see the need to	42.9% (9)	47.6% (10)	57.1% (12)	61.9% (13)	52.4% (11)	221

At this point in the survey, respondents were asked for comments they might have about alternative transportation modes. Generally the comments provided additional information about the responses provided above. Seventeen comments related to how child care responsibilities make alternative transportation impractical. Nine comments related to existing participation in alternative transportation. Fifteen comments provided additional information on employee choices with regard to alternative transportation. These comments ranged from owning vehicles that get good gas mileage, simply preferring to drive, and the need to run errands during the workday, to taking responsibility for one's decisions.

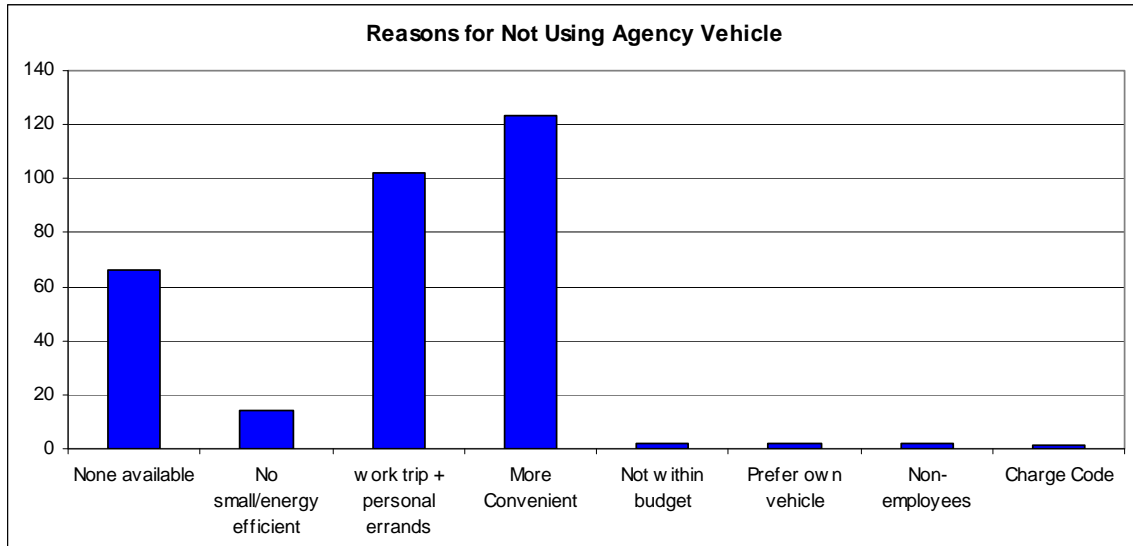
Twenty-seven comments about why walking or biking are problematic were given. Some reasons cited include weather, personal safety when commuting in the dark, dangerous roads, distance, air quality concerns, steep grades, motivation, and possible emergencies at home. The 14 comments on vanpool/carpool issues included irregular schedules, lack of vanpool availability in the employee's area, and employees actively seeking this alternative with, as yet, no luck. Most of the 14 comments about using the bus related to the inconvenient routing system in the Boise area. Other employees have no buses in their areas.

5. How often do you use your personal vehicle instead of an agency vehicle for work-related trips?

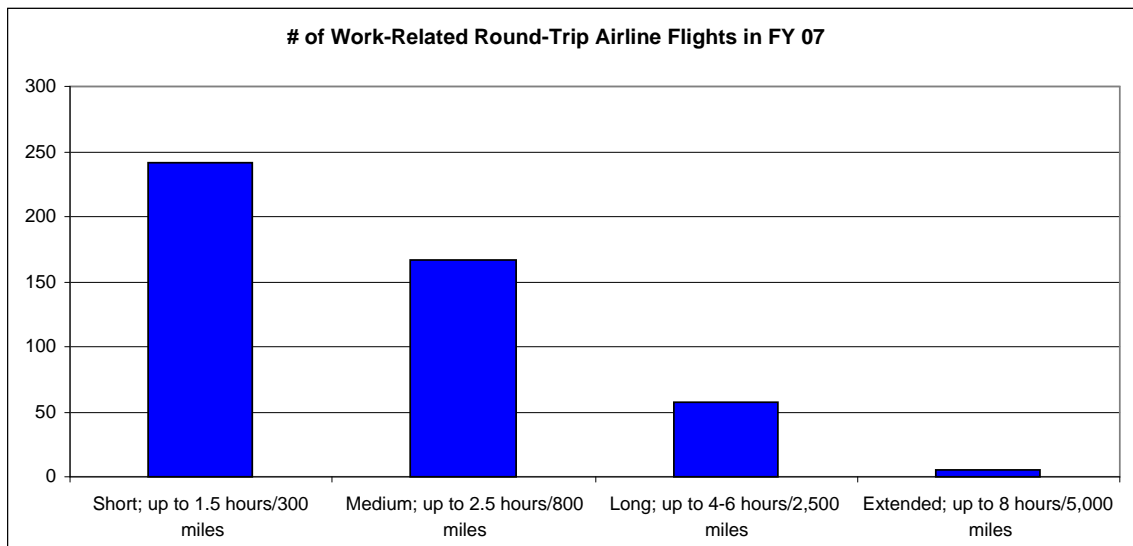


6. If you have previously used your personal vehicle for work-related trips, why?

There was no agency vehicle available	There was no small or energy efficient vehicle available	Combined work-related trips with personal errands	More convenient	Not within my department's budget	I prefer my own vehicle	I had non-employees in the car	Too difficult to remember what charge code
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7. How many work-related roundtrip airline flights did you take in FY 07?



Employee Suggestions

The survey ended with respondents being asked to give 1) any ideas for reducing GHG emissions, and 2) ideas for making it easier to use alternative transportation (a more general question than the earlier one about specific modes of alternative transportation). Summaries of the hundreds of comments/suggestions provided are given below.

1. Please share any ideas you have that would help your agency reduce its greenhouse gas emissions.

Thirteen comments related to heating and air conditioning were received. Many felt the systems were inefficient and should be improved. Several thought that space heaters should be banned and/or that employees should dress in accordance with the temperature. One respondent suggested sorting employees by their space heating needs. There were 12 comments about lighting. Several related to ensuring lights are not on all night, some suggested motion detectors, and others felt areas were overlit. One commentor suggested that use of the elevator be discouraged.

There were 18 comments related to our office buildings. Suggestions included redesigning the state office lobby, reducing the amount of water used on landscaping, installing solar panels, conducting energy audits, installing solar panels, and changing rental criteria to include energy efficiency. Four employees made suggestions about office equipment. The equipment should be energy efficient, and it should be turned off when not in use.

The DEQ fleet garnered 46 comments. Most suggested buying smaller, more fuel efficient vehicles. Many suggested that the new vehicles be hybrids, one suggested adding some scooters, and another suggested electric cars for in-town use. Several suggested having vehicles available for errands for employees that use alternative transportation. One employee suggested ensuring that multiple vehicles are not being used to go to the same destination.

Another 41 comments were made regarding telecommuting and/or flexible schedules. Many wanted telecommuting and flexible schedules to be more strongly encouraged. Some suggested making participation mandatory. A number of employees suggested that assistance be provided with set-up of home computer systems to ensure robust connection to the DEQ network. Some cautioned that there may be unintended energy use consequences such as additional home heating or more long weekend trips.

There were 26 comments relating to alternative transportation. These comments covered a wide spectrum of ideas including incentives for those using alternative forms of transportation (insurance, commute time allowance, etc.), improved shower/locker facilities, better bike storage, and reminding employee that any carpooling (even if it is not every day) is positive.

Eleven comments encouraged use of video or teleconferencing either by using new equipment or by using existing external facilities. There were 13 comments relating to reducing, reusing, and recycling. Most of these comments provided possible ways to reduce use of paper. A couple of employees suggested that DEQ increase education and outreach activities on this subject.

2. Please share any ideas you have that would make it easier for you to use alternative transportation.

Fourteen employees made comments regarding incentives ranging from specific ideas to a general idea that there should be some. There were 31 suggestions relating to walking or biking, including improved/more/dedicated bike lanes, improved locker/shower facilities, covered/safer bike storage, and access to a state vehicle in case of emergency.

There were 23 comments about buses or light rail. Generally employees feel the system must be improved in order to be workable for most people. Suggestions included improved routes, higher frequency, earlier/later hours, and a light rail type system. Comments on carpool/vanpools mostly related to ideas for methods of posting one's interest in ride-sharing.

Twelve comments were posted regarding telecommuting. Generally employees are in favor of telecommuting and feel it should be encouraged. Fourteen comments related to reasons why employees did not need alternative transportation made easier for them.

Appendix F – DEQ’s Operating Guidelines for State-Occupied Buildings

The intent of these guidelines is to give building operators and occupants an understanding of expected operating practices that provide an acceptable working environment and minimize utility operating costs.

Space Temperatures

- Adjust heating and cooling temperature settings to provide heating temperature settings of 70°-72°F and cooling temperature settings of 74°-76° F. Maintain a deadband of at least 4°F between heating and cooling temperatures.
- When building is unoccupied, turn heating system off or back to 55° F when heating and up to 85°F when cooling. (Exception: computer or other special use areas where temperature settings must be maintained.)

Office Equipment

- Turn off office equipment, i.e. personal computers, electric typewriters, and adding machines, when not in use. Turn off copy machines at the end of the working day.

Lighting

- Turn off lights when leaving an area or room that is no longer in use.
- Turn off lights in areas with adequate natural daylight. General use areas such as lobbies, corridors, and cafeterias are good candidates.
- Turn decorative and pedestrian lighting off during late evening hours.
- Walk through building and turn off lights prior to starting custodial work activities. Work together and clean sections of the building at the same time. Turn lights off as crews move to other areas of the building.
- Survey building lighting levels. Remove lamps and disconnect ballasts in areas which are overlit. Remove fixtures that are not needed.
- Replace inefficient burned-out lamps with more efficient lamp sources.

Heating, Ventilating, and Air Conditioning (HVAC) Systems

- Turn off ventilation fan systems when building occupants leave for the day. Adjust fan start-up schedules based on seasonal weather conditions.

Domestic Hot Water

- Minimize hot water temperature setting (105-115°F). Use booster heaters where higher temperature tasks are required. Shut off hot water circulation pumps.
- Minimize water use with low-flow shower heads, faucet aerators, etc.

Management

- Schedule evening and weekend activities in the most efficient buildings or in areas of a building that are individually heated or cooled, avoiding the operation of the entire HVAC system.
- Track energy use and report results to building operators and occupants.
- Develop operation and maintenance practices and checklists to guarantee a minimum level of maintenance is being completed.

Appendix G – DEQ’s Vehicle Maintenance and Inspection Schedule

IDAHO DEPARTMENT
OF ENVIRONMENTAL QUALITY (DEQ)

VEHICLE MAINTENANCE AND INSPECTION SCHEDULE

1. ROUTINE SERVICE SCHEDULE:

– Lube – oil – filter	Every 3,000 miles
– Rotate tires and balance (Make sure tire pressure is checked)	Every 3,000 – 6,000 miles
– Air filter	
– Engine tune-up	
– PCV valve	Every 12,000 miles
– Brake service	
– Front-end alignment	
– Shock absorbers	Every 20,000 miles
– Differential – drain / refill	
– Automatic transmission service	Every 36,000 miles
– Wheel bearing packing	

2. EVERY 3-6 MONTHS, VISUALLY INSPECT THE FOLLOWING: (Make required repairs)

- All fan, A/C, and power belts
- Radiator, heater, and A/C hoses (connections)
- A/C and heater systems
- Power steering
- Windshield wiper blades and arms
- Doors and windows
- Battery

3. ANNUALLY INSPECT AND/OR CONDUCT THE FOLLOWING: (Make required repairs)

- Comprehensive engine tune-up and analysis
- Comprehensive steering / brake system evaluation
- Comprehensive body / paint check
- Emissions test
- Drain, flush, and clean cooling system – refill
- Suspension system
- Mechanical linkages

Appendix H – DEQ’s Green Purchasing Policy

DEQ POLICY MEMORANDUM PM08-03

DEQ’S GREEN PURCHASING POLICY

Statement of Purpose

This shall be known as the “Idaho Department of Environmental Quality (DEQ) Green Purchasing Policy.” Its purpose is to ensure that the agency purchases recycled and other environmentally preferable products whenever they meet price and performance requirements.

Definitions

“Environmentally Preferable Products” means products that have a lesser impact on human health and the environment when compared with competing products. This comparison may consider raw materials acquisition, production, manufacturing, packaging, distribution, reuse, operation, maintenance, or disposal of the product.

“Recycled Products” are products manufactured with waste material that has been recovered or diverted from solid waste.

“Practicable” means sufficient in performance and available at a reasonable cost.

Statement of Policy

DEQ shall purchase recycled and other environmentally preferable products whenever practicable.

DEQ shall require contractors and consultants to use recycled and other environmentally preferable products whenever practicable.

Responsibilities of the Fiscal Office and the Environmental Management & Information Division

The Fiscal Office and the Environmental Management & Information Division shall be responsible for coordinating implementation of this policy. These offices shall:

- I Assign appropriate personnel to fulfill the requirements of this policy.
- II Research opportunities for procurement of recycled and other environmentally preferable products and communicate these to purchasing decision makers for evaluation and purchase.
- III Collaborate with specifying agencies to prepare or revise bid documents and contract language where necessary to implement this chapter.
- IV Collect data on purchases by DEQ of recycled and other environmentally preferable products.
- V Prepare and submit an annual report to the Director's Office by December 31st of each year, describing the progress (over the previous fiscal year) of the Department in implementation of the Environmental Purchasing Policy, including the following elements:
 - A. Quantities, costs, and types of recycled and other environmentally preferable products purchased
 - B. A summary of savings achieved through the purchase of recycled and other environmentally preferable products
 - C. A summary of program promotional efforts
 - D. Recommendations for changes in procurement policy
- VI Promote the use of recycled and other environmentally preferable products by publicizing its environmental purchasing policy and its implementation.

Responsibilities of All Regional Offices and Program Divisions

Each Regional Office and Division shall:

- I Assign appropriate personnel to evaluate opportunities for the purchase of recycled and other environmentally preferable products communicated by

the Fiscal Office and the Environmental Management & Information Division or independently developed.

- II Purchase recycled and other environmentally preferable products whenever practicable and require this of their contractors.
- III Report purchases (over the previous fiscal year) of recycled and other environmentally preferable products to the Fiscal Office by August 1st each year.

Exemptions

Nothing in this policy shall be construed as requiring the purchase of products that do not perform adequately or are not available at a reasonable price.

Implementation

This policy shall be effective immediately.

Dated this 15th day of May, 2008.

TONI HARDESTY
DIRECTOR